EUROPEAN JOURNAL OF HIGHER EDUCATION, 2017
VOL. 7, NO. 2, 101–119
http://dx.doi.org/10.1080/21568235.2017.1296367

Routledge
Taylor & Francis Group

Individuals in action: bringing about innovation in higher education

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ABSTRACT

This article addresses academics who innovate in higher education and their characteristics. We undertake a qualitative case study of six individuals who implemented disruptive and transformative pedagogical approaches and curricular practices in their departments and/or at their institutions. Our findings point to six common characteristics – motivation to change institutionalized practices, interest in change, experience in the field, multi-embeddedness, authority to act, and the strategic use of social networks – which seem to play a role at individual levels in driving these disruptive and transformative approaches. While acknowledging studies in higher education that address innovation as a response to exogenous influences, this study highlights the role of individuals with certain characteristics in driving innovation and processes of endogenous change in higher education institutions. These findings are also relevant for higher education practitioners in their desire to foster innovative initiatives in institutional settings.

ARTICLE HISTORY
Received 15 April 2016
Accepted 13 February 2017

KEYWORDS
Curricular innovation; institutional entrepreneurs; social networks; individual characteristics; institutionalized fields

Introduction

There is an abundance of research into innovation in higher education, whether in curricular programmes (McClure 2015), delivery mechanisms (Davis and Jacobsen 2014), pedagogical approaches, support service mechanisms (Sultan and Wong 2013) or management (Amaral, Fulton, and Larsen 2003). The majority of these studies, however, tend to overlook the role of individual actors and, with it, their characteristics, while emphasizing exogenous influences that 'challenged existing institutions in a field of activity' (Leca, Battilana, and Boxenbaum 2008, 3). For instance, higher education innovation is seen as a result of changes in the regional and economic contexts in which higher education institutions (HEIs) are embedded (Pinheiro, Geschwind, and Aarrevaara 2014) and the changing nature of public policies with their coercive implications on the internal organization of HEIs (e.g. Richmond 2015). However, such factors are

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not sufficient to comprehend the complexity of the phenomena because the causal processes involved at system, institutional and individual levels are distinct (Jepperson and Meyer 2011).

This means that a single set of factors influencing innovation from a system or institutional standpoint cannot reflect individual motivations in undertaking innovative changes. For example, academics have different reactions to exogenous shocks within their institutionalized settings; this may influence the degree of innovation they undertake and are willing to engage in (Degn 2016). Still, even when studies address the role of academics in change processes and innovation, they tend to over emphasize structural and cultural constraints in the academic workplace that prevent academics from engaging in innovative work (O'Meara, Terosky, and Neumann 2008). At the same time, these studies show academics' *reactions* to exogenous influences, rather than highlighting *action* as an endogenous response. This does not mean that there is no action, but rather that the lack of attention paid to individuals as actors and their characteristics in institutional innovation is limited.

This relative disregard for individuals as innovators in higher education contexts derives from the idea that institutional innovation as an actor-driven activity is unlikely in highly institutionalized settings such as higher education (Meyer et al. 2008), precisely because of constraints imposed by the institution on relevant or substantial individual innovation. Constraints posed by institutional factors (i.e. power structures, values, norms, taken-for-granted attitudes, behaviours and routines) can delimit the level of success for innovation in higher education (these institutional factors seem to be particularly influential at departmental level; see Campbell and O'Meara 2014). However, individuals can still undertake strategic action and instigate innovation in their institutions in the form of disruptive changes even if the external environment and/or institutional culture and structure are not as forthcoming as desired (Garud, Hardy, and Maguire 2007). This would suggest that the very individuals who are constrained by their institutions are also the ones that have the ability to change them. This 'dialectic' process (Seo and Creed 2002), closely related to the paradox of embedded agency, is examined in length in organizational science literature through the concept of institutional entrepreneurs (DiMaggio 1988).

To shed light on the possible enhanced role of individuals in this innovation process, we draw on the concept of institutional entrepreneurs (IEs), defined as individuals who disrupt the status quo and innovate in their institutions although constrained by environmental and institutional factors (Waldron, Fisher, and Navis 2015). Through the use of a theory that emphasizes these factors, we explore the characteristics of academics who promote innovation in institutional environments potentially adverse to change, such as higher education. Furthermore, we identify the characteristics of these higher education IEs in order to better understand who they are and how they manage constraining institutionalized environments to achieve innovative undertakings.

The next section reports on the literature of innovation in higher education and the theoretical framework of institutional entrepreneurship in which the study is embedded. The method section provides details on the research setting, data collection procedures, method and analysis. In the final section, several key findings of the analysis are outlined, and a future agenda for research is discussed.

Innovation in higher education

Innovation is a 'multi-stage process whereby organisations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace' (Baregheh, Rowley, and Sambrook 2009, 1334). In higher education studies, such innovation has been explored within the limitations of and in association with two bodies of literature. The first body of literature considers innovation in HEIs as a process of institutional adaptation to environmental pressures (Chatterton and Goddard 2000), where multiple governance arrangements and professional identities of its members reside simultaneously (Dee 2016). The responses to these pressures have forced HEIs to bring about new and enhanced practices and innovate at many levels – and in many forms – within institutional structures and curricular programmes (Davis and Jacobsen 2014; McClure 2015).

The other body of literature explores innovation as mediated by the internal characteristics of HEIs. For instance, it examines how the success of innovation is dependent on the culture within a university (Kezar and Eckel 2002). In exploring the success of changes in the curriculum at two colleges in the US, Merton and authors (2009) showed that implementation of a changed curriculum was affected by how well the change aligned with the values and norms of the institution. Alternatively, structure – or the way lines of authority, communications, rights and duties of an institution are arranged – directly affects the success of innovation within institutions. More recently, it has been suggested that the identity of an institution mediates strategy-making at universities (Fumasoli, Pinheiro, and Stensaker 2015).

These two bodies of literature address how both external (or system) and internal (or institutional – e.g. its culture, structure or identity) characteristics of a university shape HEI innovation by mediating adaptations to exogenous influences. This literature emphasizes how HEIs are guided not only in their responses and appropriate behaviour by their environment, but also by the norms and values prevalent in their departments, as well as the disciplines, which characterize their institutions (i.e. Christensen and Eyring 2011; Dee 2016). Under such conditions, undertaking and achieving innovation as an academic is highly unlikely considering institutional constraints to conform to the environmental rules, norms and values apparent in the structure and culture followed by institutional members. Moreover, academics tend to prefer to maintain the status quo (Hacker and Dreifus 2010).

While still part of a collegial environment – though increasingly influenced by managerialism and competition – academics are rewarded as individual performers for their research and contribution to the field, but often lack positive reinforcement for their institutional involvement and advancement (Dobele and Rundle-Theile 2015). Lewis (2006) argued that current scholarly activity tends to distance academics from undergraduate teaching and learning, graduation outcomes, and student employability – issues that could influence their thinking about the need for change and innovation for improving the curricula. The reason for this, in part, is the misalignment between teaching and research, as well as issues related to career progression, reputation and position which a field such as teaching (as traditionally understood) does not favour (Horta, Dautel, and Veloso 2012). This may be the norm, but there are exceptions.

Recently, claims have been made that, even in these environments, some academics strive to change institutionalized practices (Lattuca and Pollard 2016). In fact, deans were found to have a key role in driving innovation in universities (Cleverley-Thompson 2016).

Notwithstanding this literature, little is known about the role of academics as actors in driving institutional innovation, who these individuals are, how they conduct innovation, whether they share the values and norms of their institutional peers, or if they perceive institutional characteristics as coercive pressures leading to conformity. Lattuca and Pollard (2016) emphasize that intrinsic motivation, discontent with the current practices, past experiences and personal beliefs may all shape decisions to engage in change. However, the validity of these claims remains relatively under-explored, and the identity of academics who innovate and the reasons behind their power to introduce innovations remain largely unknown. To address this knowledge gap, this study uses institutional entrepreneurship literature and studies in organization science and management to analyse the characteristics of individuals who innovate in higher education settings. By doing this, this study contributes conceptual developments to the higher education literature for a better understanding of individual-institutional dynamics in HEIs.

Characteristics of institutional entrepreneurs

A key concept used in this study is 'institutional entrepreneur' (Garud, Hardy, and Maguire 2007; Battilana, Leca, and Boxenbaum 2009), which functions as a lens for understanding the characteristics of academics who undertake strategic action and instigate transformative changes in their higher education setting. This theoretical framework is distinguished from traditional neo-institutional theory, which fails to recognize the role of individual actors in innovation, positing instead that structure is perpetuated by the social repetition of norms and organizational rules of the institutional environment (Suddaby 2013).

Institutional entrepreneurship theory highlights how 'new institutions arise when organised actors with sufficient resources see in them an opportunity to realise interests that they value highly' (DiMaggio 1988, 14). These actors can be individuals, organizations or even groups of individuals or organizations; but in each case, the stress is on agency (Garud, Hardy, and Maguire 2007). This study argues that academics, as individuals in higher education who manage to 'manipulate' highly institutionalized settings and implement transformative and disruptive change at their departments with far reaching implications for the institutions, are IEs in higher education.

According to institutional entrepreneurship theory, various factors enable innovation at the field level, such as the maturity of the institutional field. Fields are defined as communities of organizations and actors 'that partake of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field' (Scott 1994, 56). These fields are bounded by shared cultural-cognitive or normative frameworks or a common regulatory system (Scott 1994).

As fields mature, they evolve into structured configurations, and IEs can leverage these predefined patterns of social structures and hierarchies when seeking to legitimise change (Maguire, Hardy, and Lawrence 2004). In emerging fields, IEs rely on established categories from outside their fields to legitimise change (David, Sine, and Haveman 2013). As a mature field, higher education is highly institutionalized (Scott and Biag 2016).

However, HEIs are also nested in regional, national or global fields; as such they face pressure from constituents in those fields (Hüther and Krücken 2016). Their location and positioning in multiple fields shapes adaptation dynamics and can impact change., thereby providing local actors with the means to legitimise their innovative undertakings.

Institutional entrepreneurship theory has also been linked to the position of an institution within a field whereby peripheral institutions are more likely to instigate change (Battilana et al. 2009). Other studies have shown that change is more likely to be initiated by central organizations precisely because they are at the nexus of multiple institutional contradictions (Greenwood and Suddaby 2006). Alternatively, institutional entrepreneurship theory has spurred a multitude of analytical research concerned largely with the characteristics of individuals seen as beneficial for innovation processes, as Figure 1 summarizes. Extant research has investigated the role of social skills, such as motivational framing (Battilana et al. 2009), ability to manage otherwise unconnected groups or brokerage (Fligstein 1997), and competency in mediating on behalf of mutual interests (Battilana, Leca, and Boxenbaum 2009), as enabling the conditions of institutional entrepreneurship. Studies have also examined how the formal position of the individual in an organization and the individual's ability to exploit institutional contradictions in order to alter existing institutional arrangements (Greenwood and Suddaby 2006) affect institutional entrepreneurship. As Figure 1 summarizes, formal authority is usually acquired through a formal organizational position (Battilana 2006). This means that certain positions within institutional structures are considered more beneficial for innovation as they legitimise the actions of individuals and mitigate the costs of innovation due to their direct access to funding (Leca, Battilana, and Boxenbaum 2008).

Other characteristics often recognized in IEs are their abilities to recognize institutionalized habits (past habits), identify insufficiencies in current institutional order (problem framing) – usually as a consequence of embeddedness in multiple institutional layers – and predict future actions which will impact a future outcome (Emirbayer and Mische 1998). Recent studies on IEs have asserted that success for innovation increases if IEs use and rely on their social networks. Social ties form social capital, which facilitates opportunity recognition, information

Concept	Explanation
Past habits (PH)	Awareness of institutionalized habits and routines (Emirbayer and Mische 1998).
Problem framing (PF)	Ability to identify problems in current institutional arrangements (Battilana et al. 2009).
Future outcome (FO)	Ability to conceptualize alternative outcomes that lead to reconfiguration of the institutionalized arrangements (Emibayer and Mische 1998).
Formal authority (FA)	Actor´s right to make decisions (Hardy and Phillips 1998).
Access to finance (AF)	Ability in mitigating cost of change (Greenwood et al. 2002).
Past experience (PE)	Exposure to particular experiences similar to the innovative practices introduced (Battilana et al., 2009) or previous experience from institutional field A which institutional entrepreneurs draw on to instigate change in institutional field B.
Multi-embeddedness institutional fields (MIF)	Awareness of multiple institutional orders (Dorado 2005) or simultaneous engagement in various institutional fields (Battilana 2006).
Multi-embeddedness institutional logics (MIL)	Ability to recognize diverse institutional logics, which Thornton (2004) defines as 'assumptions and values, usually implicit, about how to interpret organizational reality, what constitutes appropriate behavior, and how to succeed' (70).
Motivational framing (MF)	Ability to urge others to participate in change processes (Fligstein 1997).
Brokerage position (B)	Ability to mediate across groups that would otherwise be unconnected (Battilana et al. 2009).
Social capital (SC)	Drawing on social capital to attain resources (Jakobi 2013)

Figure 1. Summary of the characteristics of IEs as identified by literature.

dissemination (Davidsson and Honig 2003), and the identification or collection of resources (Jakobi 2013), thus increasing legitimacy for collective action via networks. These findings suggest that, apart from optimal field conditions, the individual characteristics of IEs and their ability to use the social capital available in their networks are also significant variables for the success of innovative endeavours. This abundant literature provides a framework for an analysis of the characteristics of individuals in higher education who change teaching and research practices by transforming and disrupting the existing institutionalized order.

Research design

Data collection and sampling

We conducted a qualitative case study based upon a relatively small number of cases for the comparison of similarities and contrasts (Collier 1993). From an initial database of 30 interviews, collected as part of a research project on curricular practices (teaching and research) and changes in pedagogical approaches in universities of applied sciences in three countries[1] (Portugal, Netherlands and Germany),[2] we selected three individuals who could be identified as IEs. Three additional interviewees were selected by convenience with them. The authors were familiar with and/or have worked in the Dutch and/or Macao and Hong Kong higher education settings; this facilitated the recognition of individual innovators, their innovation as disruptive and transformative, and the institutional constraints in fostering such changes. Figure 2 shows the characteristics of the higher education systems of the interviewees, as well as the type and level of innovation they brought, the constraints they faced and their positioning in the HEIs at the time of the innovation.

The first criterion for selecting individuals was related to the type of higher education innovation introduced. We analysed only the characteristics of those individuals who reported introducing disruptive and transformative innovation in curricular practices and pedagogical approaches. These approaches have been recently documented in literature as novel, following calls for teaching and research activities produced in the context of application, usability and transferability of knowledge to societal actors (see Hasanefendic, Heitor, and Horta 2016). They are characterized by real life experience, problem solving activities and group project work inclusive of external partners in short-duration learning. This suggests that practices were legitimized in a field outside the one in which our IEs were embedded. These practices may not be standard in some higher education settings, as one would expect, as there may be constraints due to the institutional or system context of their implementation (Walder 2015; Porter and Graham 2016). Actually, some of the innovations are considered non-innovations, or even trivial, in other contexts, but within the setting in which they occurred they were *disruptive* and *transformative*. Following disruptive literature on innovation in learning (e.g. Banerji 2015) and transformational change in higher education (Sklad et al. 2016; Iyer-Raniga and Andamon 2016), disruption in the context of higher education is defined as a process by which a new way of learning, teaching or educational organizing is introduced under conditions of institutional and environmental constraint (see Ariss and Deilami 2012, on degrees and types of innovation) or in higher education settings which do not welcome change. Disruptive innovation involves the eventual transformation of ways of learning, teaching and/or organizing into (because of their convenience and relevancy) dominant paradigms

	Country characteristics	Higher education characteristics	No. of students	Innovation	Level of innovation	Constraint	Position of the individual at the time of innovation
N1	Netherlands Population: 16,8 million (2014). - GDP (nominal - IMF): € 662.770 billion (2014). - Population with a tertiary education degree (18-58): 28% in 2012, out of which 22% are from universities of applied sciences	- binary higher education system with research universities (13 institutions; government grant funded) and universities of applied sciences (43 institutions; mostly government grant funded)	In 2015, the estimate was 420.000 at universities of a applied sciences and 240.000 at universities	- creation of an innovative undergraduate entrepreneurship bachelor program at university of applied sciences that is based on a demand-driven and assessment-based approach to learning where students determine what they learn	Program	National accreditation system Diverging beliefs of departmental colleagues and their suspicion about the new program and its success	Program manager and Curricular manager at a university of applied sciences
N2	see above	see above	see above	- creation of an interdisciplinary undergraduate program in science, business and innovation at a university	Program	University governance and faculty and departmental funding Resistance from faculty members	Retired professor and former Rector; consultant in program development
HK1	Hong Kong Population: 7,4 million (2014) GDP: € 259.610 billion Population with a tertiary education degree: 29.8% with postsecondary degree (including postsecondary schools and higher education institutions)	- 19 local degree awarding higher education institutions, eight of which are funded through the Government. Seven of the eight are universities and 1 is a teacher training institution.	In 2014-15: 87.600 full-time students and 3.900 part-time students enrolled at publicly funded undergraduate and postgraduate courses.	- development of a comprehensive paradigm of learning appropriated as the main paradigm of curricular reforms of undergraduate curriculum for teacher education	System	Beliefs of teachers who would be affected by change. Uncertainty of the teachers who would be affected by change	Professor and consultant on reforms in higher education
M1	Macau Population: 607.000 approximately (2013) GDP: € 46.23 billion (2013) Population with a tertiary education degree: /	-Macao has 10 tertiary educational institutions. Four of them are public and six are private.	During 2013-14, there were 1.941 teaching staff and 29.521 registered students.	- setting up a research infrastructure in class which significantly impacted postgraduate education at a university and in the country	Course	University governance and funding	Professor and Vice Rector at the university
G1	Germany Population: 80,7 million (2014) GDP: € 2.904 trillion (2014) Population with a tertiary education degree: 18% of university graduates; 5% are graduates from universities of applied sciences	- binary system with universities (incl. universities of art and music;166 institutions) and universities of applied sciences (221 institutions)	Current student population is 2.4 million.	- setting up a strategic approach to business and innovation in curriculum for business and marketing students at a university of applied sciences	Program	Departmental and disciplinary norms and values Disproval and resistance from departmental colleagues	Professor at a university of applied sciences
P1	Portugal Population: 10,4 million (2014) GDP: € 173.044 billion (2014) Population with a tertiary education degree: 26% from both universities (majority) and polytechnics	-binary system with 15 public universities and 15 public polytechnics. There are also 13 private universities and two private polytechnics	In 2013 there were 362.200 students in higher education in total; 242.874 in universities and 119.325 in polytechnics	- introducing new practice based and problem solving approaches in master courses at a university and reforming the higher education system towards a more participatory and inclusive system	Course	University bureaucracy Resistance from departmental colleagues	Professor at a university

Figure 2. Descriptions of higher education systems and the curricular innovation. Sources: Netherlands: www.government.nl.com; www.cbs.nl; http://ec.europa.eu/: Hong Kong: http://www.gov.hk/; Macau: https://www.cia.gov/; Germany: http://ecahe.eu/w/index.php/Higher_education_system_in_Germany; www.europa.eu/countryfiche; http://www.hrk.de/activities/higher-education-system/; Portugal: http://www.dgeec.mec.pt/np4/np4/96/%7B$clientServletPath%7D/?newsId=145&fileName=EE2014.pdf

within the auspices of their settings (see Christensen and Eyring 2011). What frames the very notion of disruptive and transformative pedagogical innovations is, therefore, the fact that individuals have to navigate through prevailing norms and values in their universities, departments and/or disciplines in order to legitimise their innovative changes.

This was the second criteria for our case selection as all selected individuals had to overcome some constraints in the implementation of innovation (see Figure 2). For example, N1 told us that he was responsible for the creation of an innovative undergraduate entrepreneurship bachelor programme with demand-driven and assessment-based approaches to learning where students determine what they learn. This type of curriculum was different from the accepted standard and challenged not only the accreditation system, but the beliefs of colleagues at the departmental level, many of whom refused to participate. N2 was engaged in and managed the creation of an interdisciplinary undergraduate programme in science, business and innovation at a university where he encountered governance and funding (institutional) challenges, as well as resistance from other professors, departmental heads and faculty deans. P1 innovated pedagogy mainly at course level and mentioned encountering few constraints as innovation was on course level, though resistance was met, mostly from other departmental or faculty colleagues and university bureaucracy. This is consistent with a higher education system that is still relatively

insular and in the process of opening-up to societal demands (Rosa and Teixeira 2014). M1 innovated at course levels by introducing research infrastructure in postgraduate education which eventually became accepted at the system level. This process was, however, restrained by university governance, funding and required renegotiation among colleagues. G1 was responsible for setting up a strategic approach to businesses, leading to innovations in curricula at programme levels, but faced disproval from departmental colleagues. HK1 developed a comprehensive paradigm of learning, appropriated as the main paradigm for curricular reforms, innovating undergraduate curriculum for teacher education at system level.[3] This academic faced several obstacles, among which the particularly challenging task of legitimating the new paradigm among colleagues.

The first author undertook open-ended interviews with the selected academics lasting from 45 to 90 min each. The interviews took place both in person and over Skype for a period of about two months in 2014. She elicited information about the innovative process, constraints and sanctions which were involved in the process of innovation design and implementation. Then, inquiries were made about the setting in which innovation occurred, the personal traits of the individuals, their motivation for change, the positions of individuals within institutional settings, the participation of others in innovation, how the innovation was implemented, what they experienced as enabling factors for change, and the novelty of the introduced change and its impact.

Data analysis

Transcriptions were analysed using the constant comparative method (Merriam 2009). In this process, the text is broken into meaningful units and coded for content based on our theoretical framework. The analysis, therefore, focused on identifying common individual characteristics of all selected cases, which we also co-related to the characteristics ascribed to IEs as found in the literature. Figure 1 outlines the common characteristics ascribed to institutional entrepreneurs which we synthesized from the institutional entrepreneurship literature. We focused on these characteristics in the analysis of the interviews to find commonalities; for example, an institutional entrepreneur in HEIs can mitigate the costs of change and access funding sources with the same ease as a non-academic institutional entrepreneurs. We did this in order to understand whether entrepreneurs in higher education settings have similar characteristics to those in non-academic environments, so as to better grasp the extent to which the actions and characteristics of institutional entrepreneurs in HEIs (since they act in highly institutionalized settings) differ from others.

We therefore adopted an abductive approach to data analysis (Locke, Golden-Biddle, and Feldman 2004; Reichertz 2007), where the goal is to explain observed characteristics related to the phenomena through a set of previously defined characteristics. This permits us to know about and advance an understanding of the phenomena in the selected field and is especially useful when the phenomena under analysis are not sufficiently explored or addressed in the field.

Findings

Figure 3 outlines the six characteristics common to all cases. These include: motivation to change institutionalized practices, interest in change, field experience, multi-

Characteristic	Concept from institutional entrepreneurship literature
Motivation to change institutionalized practices	*Past habits (PH)*: Awareness of institutionalized habits and routines and motivation to change them (Emirbayer and Mische 1998).
Interest in change	*Problem framing (PF):* Ability to identify problems in current institutional arrangements and perception of necessary changes (Battilana et al. 2009).
Field experience	*Past experience (PE):* Exposure to particular experiences similar to the innovative practices introduced (Battilana et al. 2009) or experience in the institutional field which enabled conceptualized of the need for innovation.
Multi embeddedness	*Multi embeddedness institutional fields (MIF):* Awareness of multiple institutional orders (Dorado 2005) or simultaneous engagement in various institutional fields (Battilana 2006).
Strategic use of networks	*Social capital (SC):* Drawing on social capital to attain resources (Jakobi 2013)
Authority to act	*Formal authority (FA):* Actor´s right to make decisions (Hardy and Phillips 1998).

Figure 3. Characteristics of individual academics who innovate as IEs.

embeddedness, the authority to act, and the strategic use of networks. These characteristics were related to those that have already been elaborated in literature on institutional entrepreneurship (Figure 1) where individuals engaged in change processes. The following discussion presents these characteristics in related pairs.

Motivation to change institutionalised practices and interest in change

Motivation to change institutionalized practices and *interest in change* are somewhat interrelated common characteristics. Motivation to change emerges from the perception that academics had about institutionalized habits and routines, and interest in change encompasses their awareness of the problem in the current institutional order. In IE literature, motivation is positively associated with innovation (Greenwood and Suddaby 2006). Dominant actors in the field may have the power to change current institutionalized practices, but if they lack the motivation to champion change, success will be unlikely (Garud, Hardy, and Maguire 2007). All six academics referred to current curricular practices as obsolete, considering the need to adapt the learning processes to keep up with rapidly changing socio-economic contexts. For example, P1 identified this situation as a big problem:

> This traditional way of learning, where the professor knows everything and the student knows nothing – the idea is that student goes to classroom to learn from someone that knows more than him or her. Teachers are not accustomed to not knowing answers to student questions … but if I do not know how to answer, I say simply that I do not know. Nowadays, students do not need to go to the classroom to listen to professors; you can get all of the information online; read a book. What I believe is that in classrooms, students and teachers should exchange ideas.

HK1 also exemplified the problem of current institutionalized teaching and learning practices at universities which motivated change:

> Our curricular reform is based on the understanding that the society has changed and that the core business of education is learning. People do not do what they learn nowadays … and we are not giving them the actual learning experience they deserve. This would not be a problem in the past as you got a job based on credentials; you do your job, follow the rules. Now you are on your own, units are small, and you need transversal skills.

M1 referred to the 'absence of research or culture of research' as an institutionalized practice. This is seen as problematic as 'research creates knowledge and informs action. It is a process of responding to the needs of the external world by improving it'. For M1, motivation for change and interest in change arose from the fact that the absence of research practice inhibits both regional and national socio-economic development and the engrained capacity of students to think critically about subjects they would deal with in their future workplaces.

In the case of N2, the interest in innovation was framed by the university:

> The university realised that subjects such as physics, chemistry and mathematics were not getting enough students, and when you do not have enough students, you do not get money from the Government. So we were pushed to attract more students, otherwise we would have been cut.

N2 created a new interdisciplinary programme, '*something unique*', which was based on connecting science education with entrepreneurship and introducing courses from a different educational field: '*Gamma University also has a similar program, but it is not coherent; students can choose how to combine science with business; but at the Beta University it is all unified*'. The interest in creating such a programme was not merely financial, as N2 mentioned: '*We wanted to show students the value in studying science*', particularly by introducing them to the concepts of innovation and the dissemination of scientific innovation: '*Innovation is everything that has successful market introduction so this is what we introduced first.*' The new curricular programme attracted a significant number of students and has been an example for others in the university who are trying to foster interdisciplinary programmes with innovative outputs within their fields.

Field experience and multi-embeddedness

IE theory specifies that individuals' embeddedness in multiple fields or their consciousness of multiple institutional logics, which Thornton (2004) defined as 'assumptions and values, usually implicit, about how to interpret organisational reality, what constitutes appropriate behaviour, and how to succeed' (70), matters for innovation. Our analysis showed that all six academics were exposed to different institutional settings (they either studied or taught in these different higher education settings in different countries) with particular logics, but still within the same field. At the same time, some of them were also working outside academia, or had worked closely within the private sector (N1, G1) or were involved in policymaking at country level (HK1, P1). They explicitly mentioned how they drew on the logic stemming from a different institutional setting to organize and undertake changes in their own institutional settings. N1 reflected on the '*lessons with a professor, who wrote about competence profiles*,' which N1 '*used to structure a profile of the new curricular program.*' HK1 drew on both '*long term research in the area of education*' as well as '*several examples from the industry that are illustrative of fundamental change necessary in the organisation of the education system.*' N2 was also very specific about providing inspiration for the organization of an innovative curricular programme: '*I was a visiting scholar in an Alpha University, in the Department on Science and Technology Policy, and I had experience from the way research and teaching been done there.*' M1 refers to the type of '*training provided where I studied, did my masters and doctoral degree, as well as my research stays in other countries*' as significant in understanding the relevance

and urgency of the innovational approach to curriculum. Jointly, these findings show that field experience and multi-embeddedness provide multi-level knowledge which is brought into the institutions where the academics worked and both instigated interest and provided resources for changing traditional curricular practices.

Authority to act and strategic use of networks

Authority to act was another common characteristic in the process of innovation, and it was closely connected to the ability to make decisions on how and when to implement innovations, as well as whom to involve in innovation implementation. In the literature on institutional entrepreneurship, IEs usually hold central positions within institutions which provide them with high degrees of legitimacy and power in institutional structures (Battilana 2006). In our analysis, some academics claimed that they were central players and '*could connect the teachers with the professionals*' (N2), which helped in the innovation process. N2 mentioned that he had support from two key persons in the institution and that '*these two (…) supported everything in the beginning and, together with me, we appointed some staff members, Jack and Jill, who both had industry experience, and that is why they were hired*'. Academics situated in central positions within their institutional structures also held prominent positions in the midst of their social ties or 'social networks' (Hanneman and Riddle 2005) where they could connect with others, centralizing them in innovation and attributing them with power over relations with others.

While not all academics were in these positions, they still had the authority to act. This means that peripheral actors, who lack power, could also innovate. These academics acquired the power necessary to undertake disruptive changes through the social capital of their networks. N1 and HK1 were not in central positions while pursuing their innovation drives, resulting in limited decision-making power. Despite the initial lack of power, they could still act because they were granted permission by someone else. This other authority-holding academic was in a greater position of power, and, at the same time, supported the innovation. Such individuals confer their authority through common social networks. In relation to this, N1 stated:

> I was allowed to do an experiment with a group of people to start a new bachelor program. Minister of Education gave us accreditation in 1995. I was responsible for this, and my boss the Rector said he did not understand what I was doing but he had faith in the way I was doing it.

Being part of the network was also key for HK1:

> I was not directly involved in the curriculum reform (…), (the leader was a banker) but I paved the way of the curriculum reform, or set the guidelines or underpinned curricular changes by principals that can be understood by everybody (…) and fortunately my colleagues in this process follow the same line of thought as I did.

These cases indicate a lack of power due to peripheral positions that is countered by support from someone in a common network with a central position within the institutional structure. This in turn grants 'authority to act' through the network to the academic implementing the innovation (see Maguire, Hardy, and Lawrence 2004; Battilana 2006). In this way, they used their network strategically, as the individual relied on social ties or relationships with other actors to gain legitimacy for innovation. This

demonstrates how decision making (via authority to act) can be granted to these academics via relations in their social networks.

Discussion and conclusion

In this article, academics who introduce innovation in their departments and/or institutions are analysed though the identification of characteristics as enabling factors for fostering disruptive and transformative changes in pedagogical approaches and curricular practices in diverse higher education settings. Largely, HEIs are urged to innovate their teaching and research practices to complement turbulent employment markets and shifting socioeconomic needs (Harvey 2000), as well as to adequately train the workforce (Alexander 2000). These innovative changes are underway in many countries worldwide with the support of local government and under national frameworks (e.g. Pinheiro and Antonowicz 2015). However, some national regulations and intra-institutional norms, values and routines are not as forthcoming of disruptive institutional changes (Marshall 2010).

So, how *does* innovation occur in these settings? By embedding our study within the theoretical framework of institutional entrepreneurship, we show that IEs can be found in higher education and that they have a role in introducing innovation within their departments and/or institutions which are not forthcoming of change (DiMaggio 1988). By using the abductive method, we inferred six characteristics for IEs in higher education by associating these characteristics to those commonly characterizing IEs in non-academic settings that are not highly institutionalized.

The research findings presented in this article point to the relevance of six individual characteristics to the ability of higher education IEs to successfully implement innovative change. These are motivation to change institutionalized practices, interest in change, field experience (together with significant knowledge of the field), multi-embeddedness (which stems from working in different settings in or outside the field), authority to act and strategic use of networks.

The analysis of interviews showed that motivation to change the institutionalized curricular practices was intrinsic and came from the individual's interest in several issues, such as how students were taught and who participated in education, rather than a solely extrinsic motivation and short-term benefits of innovation on the institutional level. These findings were encouraging, especially considering the recent 'output mania' in higher education (e.g. pressures for performance through set indicators), as indicated by managerialism and tight regulations which foster extrinsic motivation while minimalizing intrinsic motivation (Ko 2001). Intrinsic motivation, however, seems to be key in driving innovation in higher education, as our study shows: IEs frequently mentioned it as a reason for deciding to initiate innovation and change the institutionalized practices at their departments and/or institutions.

This finding is also associated to IEs' interest in change, which was realized because of the experiences and multilevel knowledge they gained by being embedded in different higher education fields, as a part of international or disciplinary networks, as well as in industry or policy. This finding highlights the relevance of exposure to different institutional environments and underlines the critical importance of mobility as a driver for change in higher education (which is also related to changing values and mentalities).

This is aligned with recent studies on the negative consequences of academic inbreeding, or the concept of immobility, whereby institutions hire their own PhD students as staff (Horta 2013). The multi-level knowledge provided IEs with both the acknowledgement of the problem in their institutionalized settings and the understanding of how innovation can be achieved under such conditions. This suggests that the innovative motivation of these IEs was socially constructed by a growing awareness of specific issues as previously 'unseen' challenges and the recognition of possible solutions to these challenges as derived from learning experiences in multiple and diverse environments (experiencing negative and positive benchmark cases from which to draw conclusions).

Academics engaged in promoting change in higher education also strategically use and draw upon their social networks for the acquisition of influence in order to garner support for change. Whether academics were in central positions in institutional structures or were peripheral, they relied on social capital in their social networks for success in adopting innovations. This signalled that IEs in higher education were not just equipped with a certain skill-set for innovation, but they managed to undertake innovation if they could connect with others in their institutions and strategically use the social capital available in their networks to achieve their goals. In this regard, the building of social networks inside and outside their HEIs is of importance. For example, the building of – and occupying a central position within – external networks of relevance, such as international and/or national academic and scientific associations, can attract the reputation capital necessary to facilitate internal change (Horta and Patrício 2016) by fostering the IEs position in the HEIs internal networks. However, it is probable that relying simply on an external network would be insufficient to drive change in the HEIs (because the relations where the IEs sourced their social capital would be external to the institution and, thus, perceived as alien), although there are significant benefits of such networks in innovative breakthroughs external to the organization (see Bercovitz and Feldman 2011). External networks also provide access to a variety of resources and knowledge which positively affects innovation. On the other hand, simply building centrality on internal networks does not ensure innovation (e.g. Powell and Grodal 2005) as this process assumes consensus and harmony that is largely seen as an antithesis of change.

The issues exposed above further the dialogue about the role of individuals in institutional innovation and processes of endogenous change within HEIs. HEIs are often conceptualized as institutionalized settings where innovation is unlikely and the perpetuation of the status quo is preferred (Weick 1976). HEIs are also conceptualized as places where individual members are highly constrained by both external environmental pressures and internally accepted norms and values and innovation is particularly driven by academics with certain skills and characteristics. This research highlights the importance of participation by academics with certain skill-sets in networks for the fostering of institutional innovation, thus pointing out the often-overlooked role of not only individual innovators themselves but their characteristics which influence innovation. This is particularly important in current higher education settings which demand greater flexibility and adaptability to changing environments, underlining the need to focus on two key institutional policy issues for HEIs:

(1) the need to restructure HEIs from models akin to a professional bureaucratic model (typical of the industrial age and still to a very high extent present in most universities in the world) to adhocracies (using Mintzberg's terminology; Mintzberg 1992) fostering flexibility, adaptability, and the development of aligned levels of decentralization, granting greater individual autonomy (which is required to deal with growing illities impacting higher education systems and societies alike; Heitor and Horta 2016), and
(2) the need to rethink academic recruitment and career advancement processes, highlighting the role of mobility and the purposes for which academics are hired. In the context of an uncertain society to which HEIs need to adapt while remaining competitive in their global environment (see Christensen and Eyring 2011), the definition of what an academic is may already be undergoing a substantial transformation (Shattock 2014). Academics may be hired from a perspective where an adaptable division of labour may determine the goals and outputs expected from each academic. This will require a change in academic evaluation processes and their adaptability to new times and challenges, but will also require them to become increasingly institutional entrepreneurs in order for them and the HEIs employing them to survive.

Future research Agenda

This article is a first attempt at researching the characteristics of individual institutional entrepreneurs (IEs) in higher education settings and follows a small number of cases designed to contribute to the field of higher education (Eisenhardt 1989). First and foremost, this paper has proved an influential role for the characteristics of individuals when explaining innovation in HEIs. Thus, future research should move beyond studies of the institutional environment alone. While assuring that similar innovator characteristics are found in different contexts, there is also need for a more nuanced contextualization of individual innovators. Future studies might also explore how the combination of characteristics of academics, as identified in this study, contribute to their positions in networks or network structures (Emirbayer and Goodwin 1994), as they might also distinguish different conditions that lead to innovative outcomes. For example, a complementary quantification of a network of IEs would be beneficial in addressing the flow of information on innovation between network actors (Borgatti 2005). It would determine the participation of all actors and the strength and relevance of their social ties in relation to IEs in higher education. Future studies ought to explore the behaviour of such individuals which positively influences innovation among a higher number of participants (also including those who were not involved in any innovative undertakings).

Notes

1. Universities of applied sciences, also known as polytechnics in Portugal, *hogescholen* in the Netherlands, *fachhochule* in Germany, and Cegeps in Canada and the U.S., are professional tertiary educational institutions which function as part of binary (or dual) higher education systems alongside universities. They provide practical, hands-on learning about the profession and in close interaction with the professional field, mostly at the undergraduate level (see Hasanefendic, Heitor, and Horta 2016).
2. The 30 interviews were conducted with the Deans of Schools of Technology and Digital Media and Creative Industries, Teachers and Teacher/Researchers and Managers from two

Dutch universities of applied sciences, the President, Vice Presidents, and Teachers from two Portuguese universities of applied sciences, and a professor and teacher from a German university of applied sciences. This study resulted in a recent publication where the methodology is broadly explained (see Hasanefendic, Heitor, and Horta 2016).

3. The innovations led by the interviewees in Hong Kong and Macau were researched and led to published articles: (see Horta and Martins 2014; Cheng 2002).

Acknowledgments

We are also very grateful to two anonymous reviewers for their informative and helpful insights that have improved the reasoning and presentation of the article.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The first author wishes to acknowledge the Portuguese science funding foundation FCT – Fundação para a Ciência e a Tecnologia – for supporting this research, with [grant number SFRH/BD/87424/2012]. The second author acknowledges funding from the Flanders (FWO) Research Foundation, [grant number G.OC42].

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